

# Adina Luican-Mayer, PhD

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## WORK EXPERIENCE AND EDUCATION

Argonne National Laboratory, Center for Nanoscale Materials, Argonne, IL, USA

October 2012 – to date

Alexei Abrikosov Postdoctoral Fellowship

Rutgers – The State University of New Jersey, New Brunswick, NJ, USA

2006 – October 2012

PhD degree in Physics

Thesis "Scanning tunneling microscopy and spectroscopy studies of graphene"

Adviser: Prof. Eva Andrei

Jacobs University Bremen, Bremen, Germany

2003 – 2006

Bachelor of Science – major in Physics

## HONORS AND AWARDS

- Richard J. Plano Dissertation Prize 2013
- Alexei Abrikosov Postdoctoral Fellowship at Argonne National Lab 2012 – to date
- Alcatel-Lucent fellowship for PhD studies in Condensed Matter Physics 2007 – 2012
- APS Division of Materials Physics Iris Ovshinsky Student Travel Award 2010
- Scholarship from Hamburg University for attending the Summer School "Physics of Functional Micro- and Nanostructures" 2009
- President list for academic achievements at Jacobs University Bremen 2005 – 2006
- Prizes at National Romanian Physics Olympiads 1999 – 2003

## PUBLICATIONS

### Book Chapter:

- Adina Luican-Mayer and Eva Y. Andrei, **Scanning Tunneling Microscopy and Spectroscopy studies of graphene**, in "Physics of Graphene", editors H. Aoki and M. S. Dresselhaus, Nanoscience and Technology series Springer p28 (2014)

### Journal Articles:

- Lu C.-P., Rodriguez-Vega M., Li G., Luican-Mayer A., Watanabe K., Taniguchi T., Rossi E., Andrei E. *Local and Global Screening Properties of Graphene Revealed through Landau Level Spectroscopy*, **arXiv:1504.0740 (2015)**
- L. R. Thoutam, Y. L. Wang, Z. L. Xiao, S. Das, A. Luican-Mayer, R. Divan, G. W. Crabtree, W. K. Kwok, *Temperature dependent three-dimensional anisotropy of the magnetoresistance in  $WTe_2$* , **Phys. Rev. Lett. (2015)**
- Luican-Mayer A., J. Guest Wai-Hla S., *Charge density wave suppression in ultrathin  $TaS_2$  crystals*, **arXiv:1506.04102 (2015)**
- Luican-Mayer A., G. Li, G. Autes, O. Yaziev, E. Y. Andrei, *Localized states at grain boundaries in graphite*, **In preparation. (2015)**
- Luican-Mayer A., M. Kharitonov, G. Li, C-P Lu, I. Skatcho, AM Goncalves, K. Watanabe, T. Taniguchi, E. Y. Andrei, *Visualizing the influence of an isolated Coulomb impurity on the Landau level spectrum in graphene*, **Phys. Rev. Lett. 112, 036804 (2014)**
  - Editor's suggestion
- Li G., Luican-Mayer A., Abanin D., Levitov L., Andrei E. Y. *Evolution of Landau levels into edge states in graphene*, **Nature Communications 4, 1744 (2013)**
- Luican A., Li G., Andrei E. Y., Reina A., Kong J., Nair R., Novoselov K.S., Geim A.K., Andrei E.Y. *Single-Layer Behavior and Its Breakdown in Twisted Graphene Layers*, **Phys. Rev. Lett. 106, 126802 (2011)**,
  - Highlighted in: *APS Physics Synopses*,
  - Nature news and views* 474,453–454(23 June 2011)
  - Materials Today* 14, (5, May 2011)
  - Physics World.com* (31 May 2011)
  - Nanotechweb.com* (May 2011)
- Luican A., Li G., Andrei E. Y. *Quantized Landau level spectrum and its density dependence in graphene*, **Phys. Rev. B 83, 041405(R) (2011)**
  - Editor's suggestion
- Li G., Luican A., Andrei E. Y. *Self-navigation of a Scanning Tunneling Microscope tip towards micron size samples*, **Rev. Sci. Instruments. 82, 073701 (2011)**
- Luican A., Li G., Andrei E. Y. *Scanning Tunneling Microscopy and spectroscopy of graphene on layers on graphite*, **Solid State Communications, 149, 27–28, (2009)**
- Li G., Luican A., dos Santos J.M.B.L, Castro Neto A.H., Reina A., Kong J., Andrei E.Y. *Observation of Van Hove singularities in twisted graphene layers*, **Nature Physics 6, 109 (2009)**
  - Highlighted in: *Nanotechweb.com*(Dec 10, 2009)
- Li G., Luican A., Andrei E. Y. *Scanning tunneling microscopy and spectroscopy of graphene on graphite*, **Phys. Rev. Lett 102, 176804 (2009)**
- Li G., Luican A., Andrei E. Y. *Electronic states on the surface of graphite*, **Physica B (2009)**

- I. Skachko, X. Du, F. Duerr, A. Luican, D. A. Abanin, L. S. Levitov, E.Y. Andrei, *Integer and Fractional Quantum Hall Effect in Two-Terminal Measurements on Suspended Graphene*, **Phil. Trans. R. Soc. A** **2010 368** (2009)
- Du X., Skachko I., Duerr F., Luican A., Andrei E.Y, *Fractional quantum Hall effect and insulating phase of Dirac electrons in graphene*, **Nature** **462, 192**, (2009)
- Temirov R., Soubatch S., Luican A., Tautz F.S. *Free-electron like dispersion in an organic monolayer film on a metal substrate*. **Nature** **444, 350-353** (2006)

## PRESENTATIONS:

### Invited:

- |  |                    |                |
|--|--------------------|----------------|
| • Northwestern University, <i>Colloquium</i>                             | Chicago, USA       | March 2015     |
| • UC Riverside, <i>Seminar</i>   | Riverside, USA     | March 2015     |
| • Queens College CUNY, <i>Colloquium</i>                                 | NYC, USA           | February 2015  |
| • U Wisconsin-Madison, <i>Colloquium</i>                                 | Madison, USA       | February 2015  |
| • IUPUI, <i>Colloquium</i>   | Indianapolis, USA  | February 2015  |
| • Iowa State U, <i>Colloquium</i>  | Ames, USA          | February 2015  |
| • CUNY, <i>Colloquium</i>  | NYC, USA           | February 2015  |
| • UC Merced, <i>Colloquium</i>   | Merced, USA        | February 2015  |
| • U New Hampshire, <i>Colloquium</i>                                     | Durham, USA        | January 2015   |
| • U Ottawa, <i>Colloquium</i>  | Ottawa, Canada     | January 2015   |
| • U Washington, <i>Colloquium</i>  | Seattle, USA       | November 2014  |
| • Rutgers University, <i>Colloquium</i>                                  | Piscataway, USA    | November 2014  |
| • Berkeley University, <i>Seminar</i>                                    | Berkeley, USA      | August 2014    |
| • Experimental techniques and Physics in graphene research               | Bogota, Columbia   | August 2014    |
| • NSS8 Workshop on Nanoscale Spectroscopy and Nanotechnology             | Chicago, USA       | July 2014      |
| • Northern Illinois University, <i>Colloquium</i>                        | DeKalb, USA        | April 2014     |
| • University of Central Florida, <i>Seminar</i>                          | Orlando, USA       | February 2014  |
| • University of California San Diego, <i>Seminar</i>                     | San Diego, USA     | November 2013  |
| • International Winterschool on Electronic Properties of Novel Materials | Kirchberg, Austria | March, 2013    |
| • APS March Meeting  | Baltimore, USA     | March, 2013    |
| • Instituto de Ciencia de Materiales, <i>Seminar</i>                     | Madrid, Spain      | September 2012 |
| • European Material Research Society Fall Meeting                        | Warsaw, Poland     | September 2012 |
| • Center for Nanoscale Materials, <i>Colloquium</i>                      | Argonne Lab, USA   | January 2012   |
| • University of Aachen, <i>Seminar</i>                                   | Aachen, Germany    | January 2012   |
| • University of Delft, <i>Seminar</i>                                    | Delft, Netherlands | January 2012   |
| • Gotham-Metro Condensed Matter Meeting                                  | New York, USA      | April 2010     |

### Contributed:

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|--|--|----------------|
| • European Material Research Society Spring Meeting  |  | May 2015       |
| • Suppression of charge density wave phase in ultrathin 1T-TaS <sub>2</sub>                          |  | March 2015     |
| • APS March Meeting  |  |                |
| • STM/STS of the commensurate charge density wave phase of 1T-TaS <sub>2</sub>                       |  |                |
| • AVS Prairie Chapter Symposium  |  | September 2014 |
| • APS March Meeting  |  | March 2014     |
| • Characterization of atomically thin layers of 1T-TaS <sub>2</sub>                                  |  |                |
| • MRS Spring Meeting   |  | April 2013     |
| • Visualizing the influence of an isolated Coulomb impurity on the Landau level spectrum in graphene |  |                |
| • APS March Meeting  |  | March 2013     |
| • Visualizing the influence of an isolated Coulomb impurity on the Landau level spectrum in graphene |  |                |
| • APS March Meeting  |  | March 2012     |
| • Localized states at Grain Boundaries on the surface of graphite                                    |  |                |
| • APS March Meeting  |  | March, 2011    |
| • <i>Quantized Landau levels and their density dependence in graphene on SiO<sub>2</sub></i>         |  |                |
| • Symposium Laboratory of Surface Modification   |  | March, 2011    |
| • <i>Quantized Landau levels and their density dependence in graphene on SiO<sub>2</sub></i>         |  |                |
| • APS March Meeting  |  | March, 2010    |
| • <i>Fermi velocity renormalization in twisted graphene layers</i>                                   |  |                |
| • APS March Meeting  |  | March, 2009    |
| • <i>Moiré pattern for graphene on a graphite surface and its scanning tunneling spectroscopy</i>    |  |                |
| • APS March Meeting  |  | March, 2008    |
| • <i>Graphene on a graphite surface: effect of interlayer coupling</i>                               |  |                |

### Posters

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|---|-----------------|
| • Poster presented at Gordon Conference- Correlated Electron Systems  | June, 2012      |
| • Poster presented at Metro-Gotham Conference   | November, 2010  |
| • Poster presented at the 23rd Annual Symposium Laboratory of Surface Modification Rutgers                  | March, 2009     |
| • <b>Best Student Poster Presentation Award</b>   |                 |
| • Poster presented at the 3rd International Summer School "Physics of Functional Micro- and Nanostructures" | September, 2009 |

## TEACHING

- **Teaching assistant Rutgers University** 2006-2007
  - Lab instructor “General Physics”; Recitation for “Physics for Engineering”;
  - Grader for “The greenhouse effect”; ”Energy and climate change”
- **Teaching assistant Jacobs University Bremen** 2005-2006
  - Lab instructor for General Physics

## OUTREACH/SERVICE

- **Experimental demos at “Nanodays” at Longfellow Elementary School, Wheaton, IL** 2015
- **Speaker at “ Careers in STEM fields “ at University of Chicago** 2014
- **Experimental demos at “Nanodays” at Longfellow Elementary School, Wheaton, IL** 2014
- **Keynote speaker at Naperville Central High School workshop for girls in STEM-related fields** 2013
- **Poster at Chicago Council on Science and Technology event “Nature of Nano”** 2013
- **Member of student organizing committee for Gotham-Metro Condensed Matter Meeting** 2011- 2012